

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE STANDARD

**Cistern
(No.)
No. 234-i**

Definition

A water storage structure constructed for storing runoff from roof areas.

Purpose

Cisterns are constructed to provide water for livestock, fire control, and related agricultural uses.

Federal, State, and Local Laws

Design and construction activities shall comply with all federal, state, and local laws, rules, and regulations governing pollution abatement, health, and safety. The owner or operator shall be responsible for securing all required permits or approvals and for performing in accordance with such laws and regulations. NRCS employees are not to assume responsibility for procuring these permits, rights, or approvals, or for enforcing laws and regulations. NRCS may provide the landowner or operator with technical information needed to obtain the required rights or approvals to construct, operate, and maintain the practice.

Permits may be required from the following agencies:

- 1. West Virginia Department of Health**
- 2. West Virginia Department of Agriculture**

Planning Considerations

Water Quantity

- 1. Effects on the water budget, especially on localized rates and volumes of runoff.**

- 2. Where applicable, consider the effects of snowcatch and melt on the water budget.**

Water Quality

- 1. Effects of erosion and sediment yield from disturbed areas during construction.**
- 2. Effects on the quality of water supply for livestock consumption.**

Design Criteria

Location. Cisterns shall be located on ground higher than the surrounding area or the surface shaped to prevent surface water from entering the structure. It should be as close to the point of ultimate use as possible.

Size. Cisterns shall be sized to meet the projected livestock needs for a 30-day summer period, assuming no recharge, but in no case shall have a capacity less than 2,000 gallons. Livestock water needs shall be based on the following:

<u>Animal (1,000 lbs.)</u>	<u>Water Needs (Gallons/day)</u>
Dairy cow	35
Beef cow	20
Horse	12
Swine	15
Sheep	15
Poultry	35

Runoff. Available runoff shall be adequate to recharge the cistern within a 60-day period. This runoff will be based on 70 percent of the minimum 60-day average annual rainfall for the proposed sites. The closest acceptable rain gauge may be used to obtain this information.

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Structural Details. *The cistern shall be equipped with a manhole opening to permit entrance for cleaning purposes. The manhole cover shall fit tightly to prevent entrance of dust, light, surface water, animals, etc. The structure shall be equipped with a 1-1/4 inch drainpipe and valve system. All cisterns shall be designed to withstand the loading requirement for the site selected. The minimum wall thickness for concrete structures shall be 6 inches and 16 gage for those constructed of steel.*

Materials. *Watertight construction materials such as reinforced concrete, steel, or masonry coated with a water-repellent compound shall be used. Inlet or outlet pipes through the walls shall be steel or copper.*

Plans and Specifications

Plans and specifications for installation of cisterns shall be in accordance with this standard and shall describe the requirements for construction to achieve the intended purpose.

Operation and Maintenance

Operation and maintenance of the facility will consist of periodic inspections to assure that no cracks have occurred in the concrete that would allow water to escape.

If the facility has been damaged, it shall be repaired promptly to prevent the loss of water.